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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,025	08/02/2005	Antonio Carrus	07040.0214-00000	5441

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FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

EXAMINER

FISCHER, JUSTIN R

ART UNIT	PAPER NUMBER
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1791

MAIL DATE	DELIVERY MODE
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01/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/527,025	Applicant(s) CARRUS ET AL.	
	Examiner Justin R. Fischer	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 21, 2007 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 42 is rejected under 35 U.S.C. 102(b) as being anticipated by Barrett (US 5,340,537, newly cited). Barrett discloses a temperature indicator comprising at least one reactive substance (electron accepting compound) and at least one dye substance (color changing electron donating compound). In this instance, the electron accepting compound is reactive with the electron donating compound to produce an irreversible color change (Column 2, Lines 56-62). Lastly, the language "for a tire" represents intended use and does not further define the claimed indicating means.

4. Claim 42 is rejected under 35 U.S.C. 102(b) as being anticipated by Khattab (US 3,966,414). Khattab is directed to a temperature indicator means comprising a free-

radical sensitive dye (dye substance) and an organic peroxide (reactive substance), wherein the dye changes color due to a chemical reaction with free radicals (Column 2, Lines 20+). Lastly, the language "for a tire" represents intended use and does not further define the claimed indicating means.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 19-23 and 29-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buckland (CA 781,210, of record) and further in view of Barrett, Jenke (DE 19643995, of record), and Kanakkanatt (US 2005/0087725, of record).

Buckland is directed to a pneumatic tire construction having a temperature indicating means arranged on the outer surface of the tire (Page 2, Lines 30+). The reference further teaches that temperature indicating means can be a variety of substances that are supplied by "paint" manufacturers specializing in the heat indicator field (Page 4, Lines 15-18). The reference, however, fails to specifically suggest a temperature indicating means comprising a reactive substance and a dye. Barrett, on the other hand, discloses a temperature indicating means that can be incorporated into paints (forms a temperature indicating paint) and provides a visible and permanent color change (Column 1, Lines 5-15 and Column 3, Lines 9-11). Given the teachings of Buckland, one of ordinary skill in the art at the time of the invention would have found it

obvious to use a wide variety of temperature indicating paints, including the temperature indicating paint of Barrett comprising a reactive substance (electron accepting compound) and a dye (color changing electron donating compound) for the reasons detailed above. It is emphasized that Barrett is broadly directed to a temperature indicating paint and the use of such a paint in the tire of Buckland is consistent with the teachings of Buckland to use a temperature indicating means that is supplied by "paint" manufacturers. Lastly, the mechanism of Barrett is expressly described as a chemical reaction between the electron donating compound and the electron accepting compound (Column 3, Lines 30-40).

Also, with respect to the independent claim, while Buckland is primarily concerned with monitoring the curing conditions, one of ordinary skill in the art at the time of the invention would have equally found it obvious to provide a temperature indication during running of the tire (in a cured condition). The general use of temperature indicating compounds to identify specific temperatures is known in the tire industry, as shown for example by Jenke. In this instance, Jenke discloses the use of temperature indicating compounds for targeted applications, such as extremely cold temperatures and high running temperatures (Pages 1 and 2 of translation).

Kanakkanatt further recognizes the use of similar temperature indicating paints in cured pneumatic tires (Abstract). One of ordinary skill in the art at the time of the invention would have equally found it obvious to use the temperature indicating paint of Buckland in view of Barrett in a cured tire to indicate whether a tire has experienced extremely high running temperatures (which might lead to degradation of tire properties and life).

It is emphasized that temperature indicating compounds are commonly used to identify a wide variety of temperatures, including those in the vulcanization process and those during running.

As to claims 20 and 21, Buckland suggests the use of two strips of temperature indicating material- such language suggests the use multiple reactive substances since they are designed to indicate different temperatures (Page 7, Lines 29-32).

With respect to claim 22, Figures 1-3 depict the temperature indicating means as being positioned in the shoulder region. Furthermore, one of ordinary skill in the art at the time of the invention would recognize that Buckland envisioned a plurality of arrangements as long as the temperature indicating means was on the tire rubber itself, as opposed to being attached to the interior of the mold (Page 3, Lines 1-10). Lastly, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed arrangement.

Regarding claim 23, Barrett teaches the use of "any of various known chromogenic materials may be used for the electron donating compound of the present invention, provided the chromogenic material has a melting point greater than 300 degrees Fahrenheit (Column 5, Lines 55+). One of ordinary skill in the art at the time of the invention would have found it obvious to use carbonyl dyes (e.g. anthraquinones) since they represent one of the most well known and conventional chromogenic materials. In light of Barrett, one of ordinary skill in the art at the time of the invention would have found it obvious to select a carbonyl dye having a melting point above 300 degrees Fahrenheit.

As to claims 29 and 30, the paint of Barrett contains an inorganic pigment or opaque medium in the form of titanium dioxide (Column 1, Lines 65-86).

With respect to claims 31-34 and 36-39, the paint of Barrett includes a binder constituent, such as styrene butadiene rubber, polyvinyl alcohol, and acrylics (Column, Lines 49-60). These materials are seen to be "cross-linkable" materials. Furthermore, the language "low" temperature vulcanizing properties and "low" temperature polymerizing properties does not define over the binder materials noted above since the language comprises relative terms (anything can be viewed as low). A better way to define the binder might be to include the specific binder materials if such an embodiment is desired.

Regarding claims 35 and 40, as noted above, the binder can be an acrylic- one of ordinary skill in the art at the time of the invention would have found it obvious to use a wide variety of acrylic materials, including the claimed cyano-acrylate (represents a known acrylic). Furthermore, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed binder compound.

As to claim 41, Barrett can apply the temperature indicator to an adhesive support surface (Column 7, Lines 45-55).

7. Claims 19-22, 24-28, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buckland, Khattab, Jenke, and Kanakkanatt.

Buckland is directed to a pneumatic tire construction having a temperature indicating means arranged on the outer surface of the tire (Page 2, Lines 30+). The reference further teaches that temperature indicating means can be a variety of

substances, provided it indicates a desired temperature and does not involve a complex apparatus (Page 3, Lines 15-20). While the reference fails to specifically suggest a temperature indicating means comprising a reactive substance and a dye, such a temperature indicating means is known, as shown for example by Khattab. In particular, Khattab is directed to a temperature indicator means comprising a free-radical sensitive dye (dye substance) and an organic peroxide (reactive substance), wherein the dye changes color due to a chemical reaction with free radicals (Column 2, Lines 20+). Khattab specifically states that such an indicating means is simple in operation and construction and thus, one of ordinary skill in the art at the time of the invention would have been amply motivated to use such an indicating means in the tire of Buckland. Given the teachings of Buckland, one of ordinary skill in the art at the time of the invention would have found it obvious to use a wide variety of temperature indicating means, including the temperature indicating means of Khattab comprising a reactive substance (organic peroxide) and a dye for the reasons detailed above. It is emphasized that Khattab is broadly directed to a temperature indicating means and the use of such a means in the tire of Buckland is consistent with the teachings of Buckland.

Also, with respect to the independent claim, while Buckland is primarily concerned with monitoring the curing conditions, one of ordinary skill in the art at the time of the invention would have equally found it obvious to provide a temperature indication during running of the tire (in a cured condition). The general use of temperature indicating compounds to identify specific temperatures is known in the tire industry, as shown for example by Jenke. In this instance, Jenke discloses the use of

temperature indicating compounds for targeted applications, such as extremely cold temperatures and high running temperatures (Pages 1 and 2 of translation).

Kanakkanatt further recognizes the use of similar temperature indicating paints in cured pneumatic tires (Abstract). One of ordinary skill in the art at the time of the invention would have equally found it obvious to use the temperature indicating paint of Buckland in view of Khattab in a cured tire to indicate whether a tire has experienced extremely high running temperatures (which might lead to degradation of tire properties and life). It is emphasized that temperature indicating compounds are commonly used to identify a wide variety of temperatures, including those in the vulcanization process and those during running.

As to claims 20 and 21, Buckland suggests the use of two strips of temperature indicating material- such language suggests the use multiple reactive substances since they are designed to indicate different temperatures (Page 7, Lines 29-32).

With respect to claim 22, Figures 1-3 depict the temperature indicating means as being positioned in the shoulder region. Furthermore, one of ordinary skill in the art at the time of the invention would recognize that Buckland envisioned a plurality of arrangements as long as the temperature indicating means was on the tire rubber itself, as opposed to being attached to the interior of the mold (Page 3, Lines 1-10). Lastly, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed arrangement.

Regarding claims 24-26, Khattab specifically suggests the use of benzoyl peroxide and applicant has not provided a conclusive showing of unexpected results to

establish a criticality for the claimed radical initiator (Column 3, Lines 13-17). With specific respect to claim 26, the reference further teaches that additional substituents, such as methyl, can be included in the radical initiator (Column 2, Lines 65+).

With respect to claims 27 and 28, the amount of dye and organic peroxide (reactive substance) is a function of the desired temperature indicating means- the specific ratio would differ if the indicating means is activated at shorter durations or smaller temperatures. For example, the necessary amount of peroxide to indicate a certain temperature has been reached for 15 seconds as compared to 15 minutes is significantly different. Alternatively, the necessary amount of peroxide to indicate a temperature of 150 degrees Celsius as compared to 250 degrees Celsius is significantly different. One of ordinary skill in the art at the time of the invention would have been able to appropriately select the desired ratio as a function of the above noted parameters, including those ratios defined by the claimed invention. It is further noted that applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed ranges.

With respect to claim 41, Khattab teaches an assembly in which a carrier is coated with a temperature indicating means. One of ordinary skill in the art at the time of the invention would have readily appreciated a method of adhesively bonding such a coated carrier to the tire surface of Buckland.

Response to Arguments


8. Applicant's arguments with respect to claims 19-42 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R. Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Justin R Fischer
Primary Examiner
Art Unit 1791